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Family background and context effects on educational participation in five Arab countries

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Family background and context effects on educational participation in five Arab countries

Abstract

Recent data from PAPFAM and DHS are analyzed to gain insight in the relative effects of factors at the family and district level on participation in education of children aged 8-15 in five Arab countries: Morocco, Algeria, Tunisia, Egypt, and Syria. Over the last decades, in all five countries much progress has been made in getting young children into school. Currently the major challenge is not to get them in school but to keep them there. After age 11, participation rates decrease strongly. This is especially true in rural areas, where also still major gender differences exist. In the cities, the gender differences have almost disappeared. Multivariate analyses show that education of both parents, father's occupation and household wealth are still very important determinants of educational participation of children. Also demographic factors, like number of siblings (especially brothers) and birth order are important. Absence of one of the parents and having a mother who got her first child at a young age decreases the chances of girls and older boys to be in school. At the regional/district level, a higher degree of modernization is associated with higher participation rates. Interaction analysis shows that the family background effects may differ among the countries and according to economic characteristics of the districts in which the family lives.

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Introduction

The level of schooling in most countries of the Middle East and North Africa (often called the MENA region) is still rather low. Especially in the countryside, there are still many children who did not complete primary education. As the educational level of girls is often lower than of boys, there are also notable gender differences in education in the region (AHDR, 2004-2006; UNESCO, 2007; Smits & Gündüz-Hoşgör, 2006). The restricted possibilities for children to go to school are a great problem, both for themselves and for the countries in which they live. A higher level of education of the population of a country leads to more economic growth, to less poverty and inequality and is fundamental for the construction of democratic societies and dynamic, competitive economies (World Bank, 2002a; Barro, 1999; Sen 1999: Case 2001). A higher level of education of women has the additional advantage of reducing infant and child mortality and malnutrition, reduction of fertility and enhancement of family welfare (King & Anne Hill, 1993; Smith & Haddad, 2000; World Bank, 2002b; Lee & Mason, 2005).

As part of the Education For All (EFA) campaign to which over 150 countries committed themselves at the World Education Forum in Jomtien in 1990 and which was evaluated and restarted with increased energy after the World Education Forum in Dakar in 2000, major attempts have been undertaken by international actors and national governments to increase the educational level of the population in developing countries and to get all children into school. Figure 1 gives an impression of the way these efforts have worked out in the last decades in the five countries that are the focus of this study: Morocco, Algeria, Tunisia, Egypt and Syria. The figures (derived from the data sets used in this study) show the percentages of women and men who never entered primary education according to the period in which they were of primary-school age. The figures reveal great improvements in primary entrance rates over the last decades for all five countries. The percentage of girls who never entered primary education decreased from 17-50 percent in the 1975-1980 cohort to 3-9 percent in the 1995-2000 cohort. For boys, the non-entrance rates were already much lower in the 1975-1980 cohort (5-24 percent), but also for them we see clear improvements, especially in the countries with the least favorable starting positions (Morocco and Egypt).

Figure 1 makes also clear that in spite of these substantial achievements, there remains work to be done in these countries. Even in the most recent cohorts, in none of the countries all children had entered primary education. This becomes even clearer if we look at Figure 2, which shows for each age group the percentages of children who were not enrolled in education at the time the data were gathered (2001-2003). We see that participation is highest among children aged 8 and 9 and that already at age 10 the first children start to drop out of school. From age 12 on, participation decreases strongly, especially in Morocco and Syria, where at age 15 half of girls and over 40 percent of boys were out of school. In the other countries, drop-out rates were somewhat lower but still substantial. These figures illustrate that although there remains a group of children who do not enter primary school, the major challenge currently faced by these countries is not to get the children in school but to keep them there.

This paper aims to provide insight into the reasons why some young children in these countries are not in school and why so many older children drop out too early. This is done by analyzing the effects of socio-economic, cultural, demographic and geographic (family) background characteristics and characteristics of the context in which the children are living on the participation in education of 48,000 children aged 8 to 15 in these five Arab countries. The effects are studied both bivariately, using crosstabulations, and multivariately, using multilevel logistic regression analysis with the odds of participating as dependent variable. Because the effects of family background characteristics may be different under different circumstances, besides direct effect of these characteristics also interactions with the district characteristics will be studied. In this way, more specific information is obtained that may be helpful in developing tailor-made policy interventions for improving educational participation in specific problem situations.

Because the factors that influence participation may be different for boys and girls and for younger and older children, separate analyses will be performed for four groups of children, girls aged 8-11, boys aged 8-11, girls aged 12-15 and boys aged 12-15. In the next sections, we first present background information on the countries and on their educational systems. Then we give an overview of the factors that are expected to influence the educational participation of children in the MENA region, together with the expected direction of their effects. After that the data and methods used in this study

will be discussed. The results section starts with a discussion of the bivariate relationships between the explanatory variables and participation, after which the results are presented of multilevel logistic regression models with educational participation of children as dependent variable and family-level and district-level characteristics as explanatory variables. The paper is concluded with a discussion of the findings.

Five Arab countries

The five countries that are the focus of this study are all Arab countries with large Muslim majorities (over 85 percent in Egypt and Syria and over 95 percent in the other countries). However, that does not mean that they are similar. Table 1 reveals substantial differences in size (in terms of geographical area and population), population density, economic structure, and educational characteristics. Algeria is the largest country in square kilometers, but with its vast desert areas it has the lowest population density. Syria, the smallest but one country, has the highest population density, and Egypt, Morocco and Tunisia take an intermediate position in this respect. Economically, all five countries belong to the medium-income group, with GDP per capita in 2003 ranging from $3,620 (Syria) to $6,760 (Tunisia). The economy of Algeria is heavily dominated by the oil sector; the other countries have relatively large service sectors that generate about half of their GDP. Agriculture is most important in Syria, where about a quarter of GDP was earned in this sector. In Morocco and Egypt it accounts for about one-sixth of GDP and in Tunisia and Algeria for one-eight.

The female share in the labor force is low in all countries. It ranges from 22 to 30 percent, which is substantially lower than the averages of for example the Sub-Saharan African countries (42%) or the high-income countries (43%) (World Bank, 2007). However, these statistics probably poorly capture informal labor activities, which offer employment opportunities for women in many regions of the developing world (e.g. Tzannatos & Kaur, 2003; AHDR, 2006; Gündüz-Hoşgör & Smits, 2008). Another indicator of the position of women in society, the percentage of women in parliament, shows low values for four of the five countries, but a relatively high value for Tunisia, where a process of gender-related reforms has been underway since the 1950s (Moors 1999). Tunisia also ranks highest on both the human development index (HDI) and the

gender development index (GDI). The percentage of women in parliament is with 3 percent lowest in Egypt, which also ranks relatively low on the HDI and GDI.

To gain some insight into the degree of heterogeneity of the population in the countries, Table 1 presents indices for their degree of ethnic, linguistic and religious fractionalization (Alesino et al., 2003). The fractionalization indices measure to what extent the populations of the countries are split up into ethnic, linguistic, or religious fractions that might compete for the available resources and rewards. In Algeria, Morocco, and Syria, ethnic heterogeneity is rather high. Linguistic heterogeneity is highest in Algeria and Morocco and religious heterogeneity in Syria. Egypt and Tunesia show low heterogeneity on all three measures.

The educational structures and systems of the countries differ in a number of relevant respects. The adult literacy rate in 2002 was with 51 percent still very low in Morocco. In Egypt it was with 56 percent only slightly better. Syria performed best in this respect with 83 percent. Most illiterate persons were women. Female literacy rates are one-fifth to one-third lower than those of males. Although all countries showed a substantial improvement since 1990, these figures make clear that the accumulated human capital of the adult population of the countries is rather low.

Recent figures on public spending on education are not present for all countries, but the available figures suggest that spending is highest in Morocco and relatively low in Egypt and Syria. The size of the classes is rather favorable in the study countries, with no more than 28 pupils per teacher in the least performing countries (Algeria and Morocco). This is a good achievement, given the large size of the school-age population. In all but one (Tunisia) of the countries, one third or more of the population is under age 15.

Regarding the educational systems, Table 1 shows that the age of compulsory education is 6-14 in Egypt, 6-16 in Tunisia and 6-15 in the other three countries. So except for the children aged 15 in Egypt, all of the children aged 8-15 studied in this paper are legally obliged to be in school. However the school type in which they should be enrolled differs among the countries. Algeria has comprehensive primary education from age 6 to age 15, Egypt Morocco and Tunisia have primary education from age 6 to age 12 followed by lower secondary education until age 15, and Syria has primary education from age 6 to age 11 followed by lower secondary education until age 15. So

there are some differences among the countries that might be helpful in increasing our understanding of how school systems influence participation.

The differences in duration of primary education might be particularly important for the dropout of children around age 12. Because parents are expected to allow their children to stop schooling more easily after completing a level, the number of years completed in these countries might depend on the age of completing primary. For this reason, another Middle Eastern country, Turkey, has in 1997 increased the duration of primary education from six to eight years (Smits & Gündüz-Hoşgör, 2006). The data for Syria in Figure 2 seem to confirm this expectation. The decrease in participation between age 10 and 11 is stronger in this country than in the other ones. This indicates that there might be some truth in this idea. However, the data for Algeria, with its comprehensive primary education until age 15, seem less supportive in this respect. Although in Algeria boys perform relatively well until age 14, girls show substantial dropout already at age 12. There are no indications in Figure 2 that the upper age-limit of compulsory education of 14 in Egypt has influenced the dropout rates seriously. Compared to the other countries, Egypt performs relatively well at age 14 and 15.

Theoretical background

Socio-economic factors

According to human capital theory, participation in education is an investment in human capital made because of the expected returns later in life (Becker 1964). In the case of young children, the investment decision is generally made by the parents or other caretakers. They are expected to weigh off the future benefits of sending their children to school against the immediate costs. Those benefits can be for the child, but also for the parents themselves, because in the absence of pension systems, children may be the old-age security. The decisions made by the parents need not be rational; they are influenced by how the parents perceive the world around them -- which not necessary is in line with reality -- and they may be colored by cultural norms and values -- that may legitimize existing inequalities.

The costs of schooling include besides the direct costs of books, school fees, uniforms and travel costs also opportunity costs of the children not being able to help at home, in the household or at the family farm, or to earn additional money with child

labor (Basu 1999; World Bank 2002; Admassie 2003). Because the costs weight heavier for poorer households, the first, rather obvious, socio-economic hypothesis is on the effect of poverty: Children from low income households are expected to have lower participation rates than children from other households.

Besides household income, also the occupations and educational levels of the parents are expected to play a role. According to status attainment theory, in modern societies, parents have less possibilities to ascertain a good position in society for their children via direct occupational transmission or via transference of capital, because education becomes more and more important as a means of social mobility (Blau & Duncan 1967; Treiman & Ganzeboom 1990). In these societies, parents are expected to invest more in the education of their children than in less developed societies. The theory also implies that social groups for which direct transference of capital is still important -- like farmers -- may feel less need to invest in the education of their children than people in dependent employment. Of the people in dependent employment, we would expect the non-manual employees to be most aware of the importance of education and we would expect them to invest most in their children's education. Our second socio-economic hypothesis, therefore, predicts educational participation to be lowest among children of farmers and highest among children whose fathers have non-manual occupations.

The effects of father's occupation are expected to be strongest for the educational participation of sons. As the labor force participation of women is very low in the countries under study, social mobility of women might take place mostly via their marriage with a promising husband. However, for daughters of working women, this may be different. According to the resource theory of conjugal power (Blood & Wolfe 1960; Rodman 1972) the degree to which the partners can influence important household decisions depends on the extent to which they bring in valued resources into the marriage. This implies that mothers who are gainfully employed and hence contribute to the household income have more influence on family decisions than women who are not employed. It seems likely that such more independent women may be better able to create the possibility for their daughters to go to school.

With regard to the educational level of the parents, similar processes may play a role, with the parents using their human capital to increase their children's chances to

get education (Treiman & Yip 1989; Shavit & Blossfeld 1993). Parents who have reached a certain educational level can be expected to want their children to reach at least the same level (Breen & Goldthorpe, 1997). We therefore expect higher levels of education of the parents to lead to higher participation levels of their children. For the educational participation of girls, the education of the mother will probably be especially important (Emerson & Portela Souza, 2007). Mothers who have succeeded in completing a certain level of education have experienced the value of education and also know that it is within the reach of girls to complete that level. Therefore, we expect them to use the power and insights derived from their higher education to make sure that their daughters can go to school too.

Cultural factors

The focus on economic factors of the human capital approach has been criticized by researchers who consider the major causes of the gender gap in education to be cultural and institutional (Colclough et al. 2000; Leach 2000; Swainson 2000). According to these researchers, the strategies of national governments and international agencies like the World Bank aimed at increasing girls' participation in developing countries don't acknowledge the link between girls' under-enrollment and women's status in society. They have concentrated too much on improving the supply of education and too little on the factors at home (demand side) that restrict participation (need for the girl's labor; lack of mobility, etc.). Colclough et al. (2000) argue that poverty may be a major cause of under-enrollment, but that the gender differences in enrollment are the product of cultural practices. Illiterate women are economically and for their information strongly dependent on their male family members and thus may play an important role in the reproduction of the prevailing values -- including the values which stress a subordinate position of women -- to the next generation. Once this circle is broken and women get education, the chances increase that their daughters can get education too (Smits & Gündüz-Hoşgör, 2005, 2006). With regard to the influence of socio-cultural factors, we expect to find a lower educational participation among girls whose mothers are controlled stronger by their families (as indicated by the age the mother got her first child), and among girls living in rural areas, where the influence of traditional values tends to be strongest.

In addition to this, the investment parents make in the education of their daughters may depend on the marriage traditions in the region where they live. In regions where girls tend to marry into the families of their husbands, parents may be less willing to invest in their education, because the returns to this investment go to the husband's family (Smits & Gündüz-Hosgör 2006).

Demographic factors

Demographic factors that may influence the educational participation of children are birth order, family size, presence of the parents, living in an extended family. With regard to birth order, there is some evidence that in developing countries the cost of high fertility may be borne by older siblings, rather than by the parents (Buchmann & Hannum 2001). The younger children in such families have more opportunities to go to school because the older children run the household chores, do the farm work, or contribute to the household income. Besides birth order, also the number of children may play a role. In Western societies and some developing countries, family size tends to be negatively correlated to educational participation, probably because the available resources have to be divided among more children (Pong 1997; Montgomery & Lloyd 1998; Buchmann & Hannum 2001). However this is not the case in all situations. For example, in rural Botswana, the number of 7-14 years old children in the household was found to be positively related to participation (Chernichovski 1985). The reason for this may be that with more children, there are also more helping hands at home, which may raise the chance that at least some children can go to school. The same may be true for an extended family. On the other hand, when one of the parents is missing the need for help of the children may be extra high and the chances that they go to school are expected to be lower. Gender of the siblings may also play a role. As mentioned above, under the influence of patriarchal culture and the fact that in these countries girls after marriage often come to live in the families of their husbands, parents may prefer to invest in the education of their sons. This would imply that the chances that girls get education are lower if they have a higher number of brothers.

Contextual factors

The MENA countries studied in this paper are geographically very diverse countries with substantial differences among districts within the countries. The major difference in all five countries is with regard to the level of urbanization. Because in the MENA region the educational infrastructure and the influence of modern values is strongest in the cities and weakest in the towns and villages of the countryside (AHDR, 2003; Gündüz-Hoşgör & Smits, 2007), we expect educational participation to be higher in the more urbanized areas of the countries.

However, urbanization is not the only source of sub-national variation that is relevant for educational participation of children. Among different districts of the countries also differences in level of modernization may exist that are not directly related to urbanization. In a more modern district, the influence of globalization can be expected to be stronger and the idea that education is an essential resource for both boys and girls to be more dominant than in less modernized regions of the same country.

Besides a region's degree of modernization, also the nature of the regional labor market structure may influence the decision of parents to invest in their children's education. If parents see in their environment that educated people get better jobs, they will be motivated stronger to send their children to school than if they see educated people doing the same work, or earning the same salary, as uneducated people. We therefore expect the presence of jobs for educated people in a region to be positively related to educational participation.

Interactions with the context

The causes of problems with educational participation of children may differ among countries and among regions within countries. Policy measures for improving problem situations, therefore, require knowledge that is as specific as possible. In this paper, this specificity is achieved by studying how the effects of the household-level factors differ among different contexts. In this way, the relative uniqueness of each situation with educational participation problems in these countries is addressed by considering it as a unique combination of more general factors (i.e. the factors discussed in the preceding sections). The assumption underlying this approach is that all these factors may play a

role in any problem situation, but that the extent of their importance differs among situations and is related to of the context.

For instance, it is possible that financial support may be helpful in persuading poor parents to send their daughters to school in the urban areas of the MENA countries, but less in the rural areas, where the access of women to public places is restricted by cultural traditions (Moghadam, 2004; Gündüz-Hoşgör & Smits, 2007). In this paper, such conditioning effects of the context are addressed by determining the differences in effects of the household level factors among the five countries, between urban and rural areas, and between districts with different levels of modernization and labor market structures. The variation in educational participation among the countries that remains after controlling for the household and district level factors and interactions is further explained on the basis of country-level explanatory variables.

Data and Methods

The data used for our analyses are large household data sets from the Pan Arab Project for Family Health (PAPFAM) of the League of Arab States and the Demographic and Health Surveys (DHS). Data sets are available for Algeria 2002 (PAPFAM), Egypt 2003 (DHS), Morocco 2003 (combined PAPFAM & DHS), Syria 2001 (PAPFAM) and Tunisia 2001 (PAPFAM). Both PAPFAM and DHS use nationally representative samples of households and collect information on all household members, including information on the educational enrollment of children. Response rates were high; for the household and women's surveys respectively 94 and 97 percent in Algeria, 99 and 96 percent in Morocco, 95 and 99 percent in Syria, 91 and 92 percent in Tunisia and 99 and 99 percent in Egypt. Detailed information on the data can be found in the final reports available from the PAPFAM and DHS+ websites (www.papfam.org; www.measuredhs.com).

Our analyses are restricted to children under age 16, because the parent's information is often not available for older children (who may have left their parental families because of early marriage). To make a rough division between primary and secondary education, the analyses will be done separately for children aged 8-11 and children aged 12-15. The lower boundary of 8 for being in primary education is taken because in these countries there are rather much children who go to school at an older

than normal age. The total number of children aged 8-15 included in the analyses is 47,860, of which 23,138 girls and 24,722 boys. The number of children per country is 11,393 in Algeria, 9,225 in Egypt, 10,294 in Morocco, 11,504 in Syria and 5,444 in Tunisia. Figure 1 is based on data for 127,960 respondents aged 9-33 and Figure 2 on data for 54,255 children aged 7-15.

Method and variables

The effect of family background characteristics and regional characteristics on the participation in education is studied using bivariate cross tabulations and multilevel logistic regression analyses. Dependent variable in the analyses is a dummy variable indicating whether (1) or not (0) the child was enrolled in education at the time of the survey. Independent variables are socio-economic characteristics (occupation father, work status mother, household wealth), cultural characteristics (parental education, age mother got her first child), demographic characteristics (age, presence of parents, number of brothers and sisters, birth order, living in an extended family, being a non-biological child), geographic characteristics (living in urban or rural area), and characteristics of the district in which the child is living (degree of modernization, labor market structure and marriage traditions). Because explanatory variables at two levels of aggregation are used (family level and sub-national regional level) and our families and regions are nested within different countries, three-level multilevel logistic regression models are used. Multilevel analysis addresses the correlation among the characteristics of individuals and households nested within the same districts and countries in a methodologically sound way. It also makes it possible to include explanatory variables at different levels simultaneously and to study interactions among the levels (see Snijders & Bosker, 1999; Hox, 2002). In the analyses robust standard errors (sandwich estimates) were used. If case weights were available in the data sets to make the samples representative of the population, they were applied in the analyses.

Measurement

Occupation of father is measured with three categories: (1) Farm, (2) Lower nonfarm (sales, services, manual), (3) Upper nonfarm (professional, technical, managerial, clerical). Work status of the mother is a dummy indicating whether (1) or not (0) the

mother is employed. Education of father is measured with three categories: (1) None, (2) At least some primary, (3) At least some secondary. Given the low educational levels of the mothers in these countries, their education was measured with a dummy indicating whether (1) or not (0) the mother has at least some primary education.

Because income is lacking in the data sets, household wealth will be measured by an index constructed on the basis of household assets (like radio's, cars, telephones), the possession of land, and characteristics of the housing (like floor material, roofing, toilet facilities and source of drinking water). Using a method developed by Filmer and Pritchett (1999), all households within a country are ranked on the basis of these characteristics and divided into wealth index quintiles. Our wealth variable has three categories, (1) lowest 20%, (2) 20-80%, (3) upper 20%. Although the method used to construct the index means that absolute wealth levels are not comparable among countries, Filmer and Pritchett (1999) showed on the basis of data for 35 countries that relative poverty, i.e. belonging to the lowest wealth group of a population negatively affects educational attainment.

Age of the child is measured in years. Presence of the parents is measured by two dummy's indicating whether (1) or not (0) the mother and father are missing from the household. The numbers of sisters and brothers are measured with two variables with each three categories (1) None, (2) One or two, and (3) Three or more. For birth order also a three-category variable is used: (1) Oldest child, (2) second to fourth child, (3) fifth or later child. Extended family is measured with a dummy indicating whether (1) or not (0) there are more than two adults living in the household. Being a non-biological child is measured by a dummy indicating whether (1) or not (0) the child is a foster child, adopted child, other family member, or non-family member living in the household. Urbanization is measured with two categories (1) Urban, (2) Rural. Age of mother at birth first child is measured by a dummy indicating whether (1) or not the mother got her first child under age 18.

Children with a missing parent were given the mean score of the other children in the database on the variables indicating characteristics of the parents. Because we also included dummies indicating whether (1) or not (0) the mother or father is missing, this procedure leads to unbiased estimates of these variables (Allison, 2001, p.87). For children with mothers younger than 16 or older than 49, information on occupation of

the father, employment of the mother and the age at which the mother had her first child was not available in the data for Morocco and Egypt. To be able to include those children in the analyses, we gave them on these variables the average of the children for which information was available and we included a dummy indicating whether (1) or not (0) the respective variable was missing from the database. To find out whether the coefficients of the other variables were biased by this procedure, two robustness tests were performed. In the first test, the models were estimated again after removing (both separately and jointly) the variables for father's occupation, mother's employment and age first child of the mother. In the second test, the models were estimated after removing the children with missings on these variables. Both tests showed that the way we handled these missings hardly influenced our results.

The number of districts distinguished in the countries is 15 for Morocco, 47 for Algeria, 7 for Tunisia, 21 for Egypt, and 14 for Syria. So, at the sub-national level, there are 104 units of observation of which characteristics can be used to explain the variation in educational participation of the children living there. The district characteristics used in this study are degree of modernization and labor market structure. These characteristics were obtained by aggregating variables from the individual surveys to the regional level. Regional level of modernization is measured by an index constructed on the basis of six variables: percentages of households owning a car, a fridge, a telephone, and a tv in the region and percentages of households with electricity and streaming water in the region. Of these characteristics the mean was taken of the standardized values. For Syria, information on electricity and water was lacking, so the index is based on the ownership of the four household assets. As indicator of the regional labor market structure, the percentage of males aged 30 to 49 years employed in a white-collar occupation is used. In the analyses of the educational participation of girls, also the labor market structure for women is used, indicated by the percentage of females aged 30 to 49 employed in a white-collar occupation.

Results

The figures on educational non-participation of children presented in Figure 2 are for the countries as a whole. However, within countries, major differences may exist, especially between urban and rural areas. In Figure 3 and 4, those differences are shown

for the five countries under study. Figure 3 shows that at the primary level educational participation in the countryside is substantially lower than in the cities. For girls the differences are large, with 2 to 7 times higher non-participation rates in the countryside. Whereas in the cities no more that three percent of girls aged 8-11 are out of school, in the countryside the non-participation rates range from 6 percent in Egypt and Syria to 22 percent in Morocco. For boys the differences are somewhat less, but with 1.5 to 4 times higher non-participation rates in the countryside they are still substantial. The figures for the older children are even more striking, with non-participation rates in the countryside of 12 to 41 percent for boys and 24 to 61 percent for girls.

Together these figures make clear that in the rural areas of the countries much work remains to be done, especially with regard to the participation of girls. However, they also show that in the cities the situation is much better. Very important is the observation that in the cities the gender differences have almost disappeared. In a few cases, participation rates of girls are even better than those of boys and nowhere the difference is more than one percent to the disadvantage of girls. Thus it seems that in the cities of these MENA countries girls are able to profit from the better educational facilities and/or suffer less from cultural restrictions that may hamper their participation in the rural areas.

Factors influencing educational participation

To gain insight into the factors that might affect the non-participation or dropping out of school in the MENA region, Appendix A presents two tables which show the non-participation rates of boys and girls aged 7-11 and 12-15 in the 5 countries according to characteristics of their family background and of the district in which they live.

The figures show that the socio-economic characteristics of the parents make a big difference for boys and girls at both levels. If the father has more than primary education or the mother has attended primary education, the chances that a child is in school are much higher than if the parents have less education. The same is true when the father is working in an non-farm occupation and even more if it is an upper non-farm (white-collar) occupation. Household wealth also plays a major role, which indicates that financial restrictions may still be important in these countries. For parental education, the differences are displayed graphically in Figures 5 and 6, which clearly

show how much difference a highly educated father or a mother with some schooling may make.

Regarding the demographic factors, the differences in educational participation are less pronounced than for the socio-economic factors. Most factors show the expected effects in most circumstances, but there are also exceptions. For girls, several effects seem to be stronger than for boys. This is for example the case for the effects of the number of sisters and brothers and the effect of absence of the mother.

Multivariate Analysis

The figures presented so far show the bivariate relationships between participation in education of the children and their socio-economic, demographic, and cultural (family) background characteristics. They reveal how educational participation varies among different social groups within the five countries, and are important as such. However, because these characteristics may be related to each other (e.g. higher educated mothers tend to be married with higher educated fathers; traditional women tend to live in the countryside; being the fifth child means having at least four siblings), the bivariate figures give no insight into the relative importance of the various characteristics in explaining the differences in participation. To find out which factors are most important in this respect and to include also some characteristics of the context, we have conducted multilevel logistic regression analyses with participating in primary or secondary education as dependent variables and the geographic, socio-economic, demographic and cultural indicators as independent variables.

Tables 2 and 3 present the results of the logistic regression analyses. Separate models are estimated for boys and girls aged 8-11 and 12-15. Because the effects of background characteristics may differ between urban and rural areas, between more and less modernized regions, and among regions with different labor market structures, we have tested for the presence of interactions between these context variables and the family level factors. The coefficients presented in Tables 2 and 3 are the coefficients of the final models, including all significant interactions. To keep the tables readable, the coefficients of the main effects are presented in Table 2 and the significant interactions in Table 3.

Regarding the effects of parental education and household wealth, the results of the multivariate analyses are similar to those of the bivariate ones: if the parents are uneducated or the household is in the lowest wealth quintile the chances that children are in school decrease strongly for both boys and girls at both levels. However the effect of father's occupation turns out to be less strong than expected on the basis of the bivariate results. Only if the father has an upper nonfarm occupation, educational participation of children is increased and for primary education of girls this effect is even not significant. There are no significant differences in participation between fathers with a farm and fathers with a lower nonfarm occupation. Hence for educational participation of children the manual-nonmanual boundary is more important than the farm nonfarm boundary.

Employment of the mother turns out to play only a role for participation of younger girls, and there the effect is contrary to expectations. Children of employed mothers tend to be less in school.

If the mother is missing, the chances of girls to go to school are strongly decreased. Absence of the mother does not affect boys' participation. If the father is missing, this has a negative effect on participation of girls and of older boys. However these effects are less strong than those of a missing mother. For participation of younger boys, none of the family structure variables plays a role of importance. In contrast, for younger girls all family structure factors play significant roles. This suggests that primary education of girls depends much more on the circumstances of the family than primary education of boys. For older children such a difference does not exist. Both boys and girls aged 12-15 are less in school if they have more brothers, if they have a more traditional mother, and if they are a non-biological child. Being a fifth or later child increases the chances of being in school of older children, which seems to confirm the idea that the helping of older children at home may increase the chances that younger children go to school.

At the bottom of Table 2, we see that the context in which children live also matters for their chances to go to school. For boys and for younger girls, the degree of modernization of the region in which they live has a significant positive effect on their chances to go to school. However, the percentage of white collar jobs in the region does

not show the expected positive effect on their participation. The only significant effect of this variable is for younger boys, and there the effect is negative.

Interaction effects

The interaction effects presented in Table 3 show to what extent the effects of the variables in Table 2 differ between rural and urban areas and according to the degree of modernization and labor market structure (percentage of white collar occupations) of the region in which the children live. All possible interactions with these variables were tested, but only the significant interactions were included in the final model presented in Tables 2 and 3.

The upper part of Table 3 shows that for educational participation of young boys, having a father with at least some primary education is more important in rural areas than in the cities. This suggests that the importance of human capital increases in areas where it is relatively scarce. For education of young girls and older boys, wealth is less important in the countryside than in the cities. Interestingly, for older boys participation is higher when the mother is more traditional, which suggests that in more traditional families boys get a bigger part of the available resources. For older girls, the importance of being a biological child is less in the countryside than in the cities. This suggests that non-biological older girls in the cities may be more often domestic workers, whereas in the countryside they may be more often members of the larger family, like cousins, who are taken up in the family for one or another reason.

The interactions with modernization (middle part of Table 3) show that the importance of father's occupation for young boys participation is lower in the more modernized regions of the five countries. Older boys tend to drop out of school earlier with increasing age in the more modern regions. Maybe in those regions there are more possibilities to earn money at a young age than in less developed regions. For older girls, missing the mother is worse in modern regions than in less modernized regions. On the other hand, in the more modernized regions living in the countryside seems to be an advantage for older girls educational participation.

The variation in the background effects according to the percentage of white collar jobs in the region is presented in the bottom part of Table 3. With more white collar jobs in the region, educational participation of younger children and of older boys is higher

in the rural areas. This suggests that white collar jobs when they are available are considered as serious options for their children by people living in the countryside. For older children, the effect of household wealth is less important in regions with more white collar jobs, which might mean that in such regions education is more accessible for children with poor parents. For older girls, also the effect of father's occupation is less important, whereas the importance of father's education is higher in these regions. Thus the role of economic capital seems less and of cultural capital more important in regions with more white collar jobs.

Conclusions

Our data show that over the last decades in all five MENA countries much progress has been made in getting young children into school. For Morocco, the percentages of children who never entered school, which were as high as 50 percent for girls and 24 percent for boys in the 1970s, decreased to under 10 percent by the end of the 1990s. For the other countries, primary entrance rates were already better in the 1970s, but especially for girls still great improvements were made. Because of this success of the last decades, the major challenge for policy makers has shifted from getting the children into school to keeping them in school. After age 11, participation rates of both boys and girls decrease rapidly. This decrease is strongest in Morocco and Syria, but it is also present in the other countries.

Another remaining problem is the large difference in participation rates between the urban and rural areas of the countries. Especially for girls, in all five countries participation rates are substantially lower in the rural areas, where between 6 and over 22 percent of younger girls and between 24 and 60 percent of older girls were not in school at the time of survey. This low participation of girls in rural areas may be due to the worse schooling and transport infrastructure and the cultural/patriarchal restrictions on the freedom of movement of girls in these areas. The fact that for boys the situation is better (although worse than in the cities) indicates that infrastructural restrictions are only part of the problem and that preferences of the families for boy's education over girl's education play a role too.

A very important finding is that in the cities not only participation rates are much higher than in the countryside, but that also the gender differences have almost

disappeared there. In a few cases, participation rates of girls are even better than those of boys and nowhere the difference is more than 1 percent point to the disadvantage of girls. This might be due to the more favorable schooling infrastructure in the urban areas and stresses again that the differences between boys and girls in the countryside are at least in part due to the influence of traditional values that restrict the possibilities of girls to travel to school.

To be better able to solve the remaining problems, it is important to gain insight into the factors that influence educational participation and school drop out in these countries. We therefore have studied the effects of socio-economic, cultural, demographic and geographic (family)background characteristics and characteristics of the context in which the children are living on the participation in education of girls and boys aged 8 to 15 on the basis of representative data sets. Our analyses showed that the factors central in status attainment and social mobility models, father's and mother's education, household wealth and father's occupation also play a major role in the educational attainment processes in the MENA region. Even for the very basic issue of whether a child of primary school age actually goes to school, the economic and cultural resources of the parents make a big difference. At this level, the resources brought in by the parents also need not be very much. If the mother has attended at least some primary education, the chances that a girl is in school already increase strongly.

However, this study also shows that socio-economic resources explain only part of the family effect. Demographic factors, like number of siblings (especially brothers) and birth order are important, too. For young girls, the household situation is especially important. Whereas for young boys none of the demographic factors significantly affects their participation, for young girls this was the case with all but one of these variables. They are less in school if their mother is missing or got her first child at a young age, if there are more sisters or brothers at home, if they are the second to fourth child or a non-biological child, or if they are older. So any obstacle or form of competition seems to reduce the educational participation of young girls immediately. Only young girls who live in an extended family or a single parent family have a higher chance of being in school. The former finding is in line with the idea that grandparents or other relatives living in the household take over household tasks otherwise fulfilled by younger daughters. The latter one is more difficult to explain. Given that we control

for many other characteristics, including socio-economic ones, it seems to suggest that single parents (mostly mothers) invest a substantial part of their resources into their children's education.

Besides these factors at the household level, also the degree of modernization of the district-level context in which the household lives are important. Young children and older boys have significantly higher participation rates in more modern districts and participation of young boys is significantly lower in rural areas.

To gain insight into the way in which the effects of the household level factors depend on the context in which the household lives – and hence to get more situation-specificity in our analysis – also interactions of the household-level factors with the context were studied. In this interaction analysis, we tested whether the effects of the household-level factors differed significantly between urban and rural areas and according to the level of modernization and labor market structure of the districts. This analysis revealed a substantial number of significant interactions. For example, in regions with more white collar jobs, the importance of father's occupation and household wealth for educational participation of older girls is lower and the importance of father's education higher than in regions with less of such jobs. In more modern regions the importance of father's occupation for the educational participation of young boys is lower than in less developed regions. Educational participation in rural areas is higher within districts that have higher levels of development, as measured by the degree of modernization (for older girls) or the number of white collar jobs (for boys and younger girls). The significance of these and other interaction coefficients implies that for developing effective policy measures aimed at increasing participation, both family characteristics and characteristics of the larger situation in which the family lives should be taken into account.

References

Admassie, A. 2003. Child labor and schooling in the context of subsistence rural economy. International Journal of Economic Development, 20.

AHDR (2004, 2005, 2006). Arab Human Development Reports. 2003, 2004, 2005. New York: UNDHP.

Ahmad, L. 1982. Feminism and Feminist Movements in the Middle East, A Preliminary Exploration: Turkey, Egypt, Algeria, Peoples Democratic Republic of Yemen. Women's Studies International Forum. 5(2): 153-168ç

Alesina, A., A. Devleeschauwer, W. Easterly, S. Kurlat and R. Wacziarg (2003), Fractionalization. Journal of Economic Growth, Vol. 8, 155-194.

Allison, P. D. (2001). Missing Data: Series/Number 07-136. Quantitative Applications in the Social Sciences. London: Sage University.

Barro, R. (1999). Determinants of democracy. Journal of Political Economy, 107, S158-S183.

Basu, K. 1999. Child labor: cause, consequence, and cure, with remarks on international labor standards. Journal of Economic Literature, 37, 1083-1119.

Becker, G. 1964. Human Capital: A theoretical and empirical analysis with special reference to education. New York: Columbia University Press.

Blau, P. & O. Duncan 1967. The American occupational structure. New York, Wiley.

Blood, P. M. & Wolfe, D. M. 1960. Husbands and wives. The dynamics of married living. New York: Free Press.

Breen, R., & Goldthorpe, J. H. (1997). Explaing Educational Differentials: Towards a Formal Rational Action Theory. Rationality and Society, 9 (3), 275-305.

Buchmann, C., & E. Hannum. 2001. Education and stratification in developing countries. Annual Review of Sociology, 2001, 77-102.

Caldwell, J. 1982. Theory of Fertility Decline. New York, Academic Press.

Case, A. (2001). The primacy of education. Princeton: WWS Working Paper 203.

Chernichovski, D. 1985. Socioeconomic and demographic aspects of school enrollment and attendance in rural Botswana. Economic Development and Cultural Change, 33, 319-32.

Colclough, C., P. Rose & M. Tembon. 2000. Gender inequalities in primary schooling. The roles of poverty and adverse cultural practice. International Journal of Educational Development, 20, 5-27.

DHS+ 2004. About DHS+ Surveys and Research. Available from: http://www.measuredhs.com.

Emerson, P. M., & Portela Souza, A. (2007). Child Labor, School Attendance, and Intrahousehold Gender Bias in Brazil. The World Bank Economic Review, 21 (2), 301-316.

Filmer, D. & L. Pritchett. 1999. The Effect of Household Wealth on Educational Attainment: Evidence from 35 Countries. Population and Development Review, 25, 85-120.

Gündüz-Hosgör, A. & J. Smits. (2007). The status of rural women in Turkey: What is the role of regional differences. In V. Moghadam (ed.) Empowering women: Participation, rights and women's movements in the Middle East, North Africa, and South Asia. Syracuse: Syracuse University Press.

Gündüz-Hosgör, A. & J. Smits (2008). Variation in Labor Market Participation of Married Women in Turkey. Women's Studies International Forum, 31, 104-117.

Hox, J. (2002). Multilevel Analysis: Techniques and Applications. New York, Erlbaum.

IPU (2007). Women in National Parliaments Statistical Archive. Inter-Parliamentary Union, http://www.ipu.org/wmn-e/arc/classif310706.htm, accessed august 2007.

King, E. M. & Anne Hill, M. 1993. Women's Education in Developing Countries. Baltimore: John Hopkins University Press.

Leach, F. 2000. Gender implications of development agency policies on education and training. International Journal of Educational Development, 20, 333-347.

Lee, Sang-Hyop & Andrew Mason (2005). Mother's Education, Learning-by-Doing, and Child Health Care in Rural India. Comparative Education Review, 49, 534-551.

Lewis, B. 1968. The Emergence of Modern Turkey. Oxford: Oxford University Press.

Montgomery, M. R., & Lloyd, C. B. 1998. High fertility, unwanted fertility, and children's schooling. In C. H. Bledsoe, J. B. Casterline, J. A. Johnson-Kuhn, and J. G. Haaga (eds.), Critical Perspectives on Schooling and Fertility in the Developing World. Washington, DC: National Academy Press, pp. 216–266.

Moors, Annelies (1999). Debating Islamic Family Law: Legal Texts and Social Practice. In M.J. Meriwether, J. Tucker (eds), The Social History of Women and Gender in the Modern Middle East. Boulder: Westview, 141-77.

Pong, S. 1997. Sibship size and educational attainment in Peninsular Malaysia: Do politics matter? Sociological Perspective, 40, 227-42.

Rodman, H. 1972 Marital Power and the Theory of Resources in Cultural Context. Journal of Comparative Family Studies, 3, pp. 50-57.

Sen, A. (1999). Development as freedom. London.

Shavit, Y., & H. Blossfeld (1993). Persistent inequality: Changing educational attainment in thirteen countries. Boulder, CO: Westview.

Smith, L. C. & L. Haddad (2000).Overcoming Child Malnutrition in Developing Countries. 2020 Vision Discussion Paper 30. Washington, DC: IFPRI.

Smits, J. & A. Gündüz-Hosgör. 2003. Linguistic capital: Language as a socio-economic resource among Kurdish and Arabic women in Turkey. Ethnic and Racial Studies, 26, 829-853.

Smits, J. & A. Gündüz-Hosgör. 2005. Effects of family background characteristics on educational participation of girls in Egypt, Morocco, and Turkey. Paper presented at the conference "Urban Children and Youth in the MENA Region: Addressing Priorities in Education", May 16-18, Dubai, U.A.E.

Smits, J. & A. Gündüz-Hosgör. 2006. Effects of family background characteristics on educational participation in Turkey. International Journal of Educational Development, 26, 545-560.

Snijders, T., & Bosker, R. (1999). Multilevel Analysis: An introduction to basic and advanced multilevel modeling. Sage Publishers.

Swainson, N. 2000. Knowledge and power: The design and implementation of gender policies in education in Malawi, Tanzania and Zimbabwe. International Journal of Educational Development, 20, 49-64.

Treiman, D., & H. Ganzeboom. 1990. Cross-national comparative status-attainment research. Research in Social Stratification and Mobility, 9, 105-127.

Treiman, D., & K. Yip. 1989. Educational and occupational attainment in 21 Countries. In Kohl, M. L. (ed.) Cross-national research in sociology. Newbury Park, Sage.

Tzannatos, Zafiris & Iqbal Kaur (2003). 'Women in the MENA Labor Market: An Eclectic Survey', in: Pripstein Posusney, Marsha & Eleanor Abdella Doumato (eds.), Women and Globalization in the Arab Middle East. Gender, Economy & Society. Boulder, London: Lynne Rienner.

UNDP (2004) Human Development Report 2004. New York: United Nations Development Programme.

UNESCO (2007). Education for All by 2015: Will we make it? EFA Global monitoring report 2008. Paris: UNESCO Publishing & Oxford University Press.

IAU (2008). International Association of Universities Online Database. http://www.unesco.org/iau/onlinedatabases. Accessed May 2008.

World Bank. 2002a. Poverty Reduction Strategy paper. Education Chapter. World Bank, Human Development Network.

World Bank (2002b). Achieving education for all by 2015: Simulation results for 47 low-income countries. World Bank, Human Development Network.

World Bank (2003). World Development Report 2004. Making Services Work for Poor People. Oxford: Oxford University Press.

World Bank (2007), World Development indicators Online. http://devdata.worldbank.org/dataonline/old-default.htm, accessed August 2007.

Figure 1. Percentage women and men who never went to school by period they should have started primary education

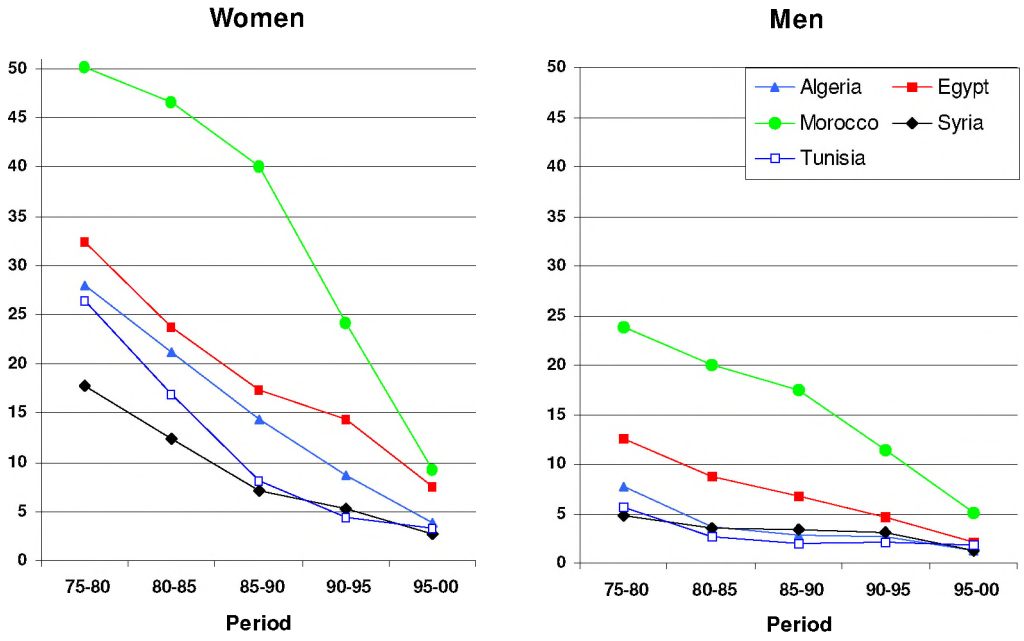

Figure 2. Percentage *not* in school of girls and boys by age

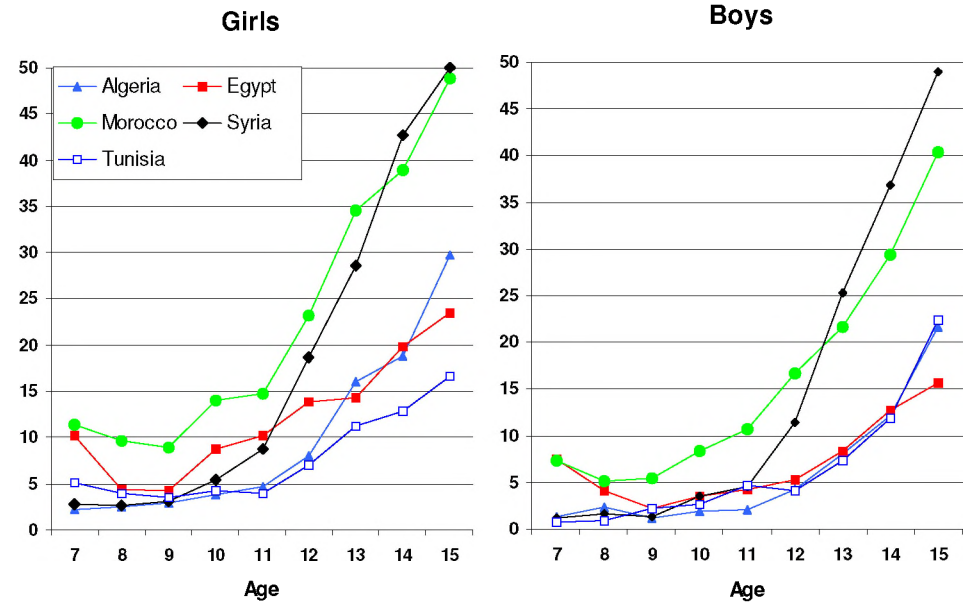

Figure 3. Percentage *not* in school of girls and boys aged 8-11 in urban and rural areas

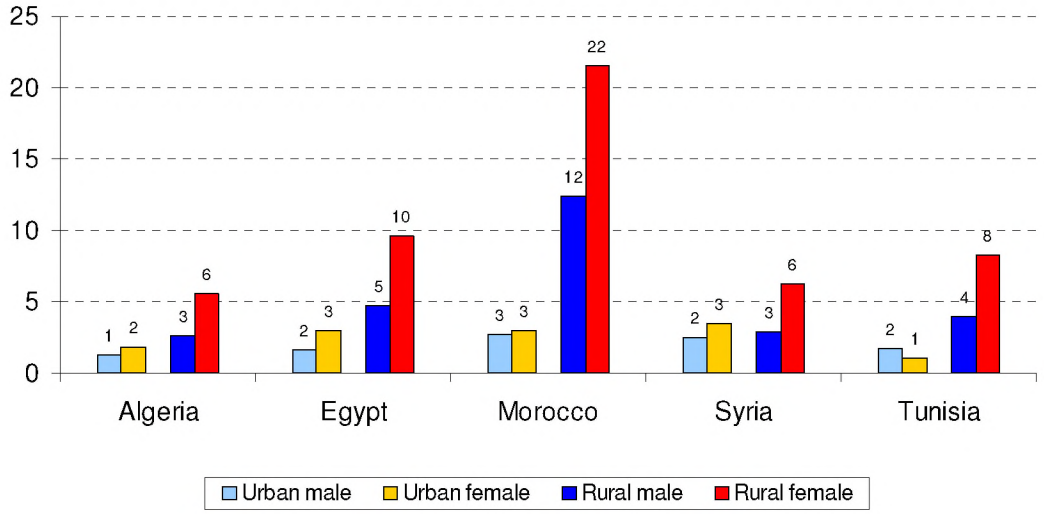

Figure 4. Percentage *not* in school of girls and boys aged 12-15 in urban and rural areas

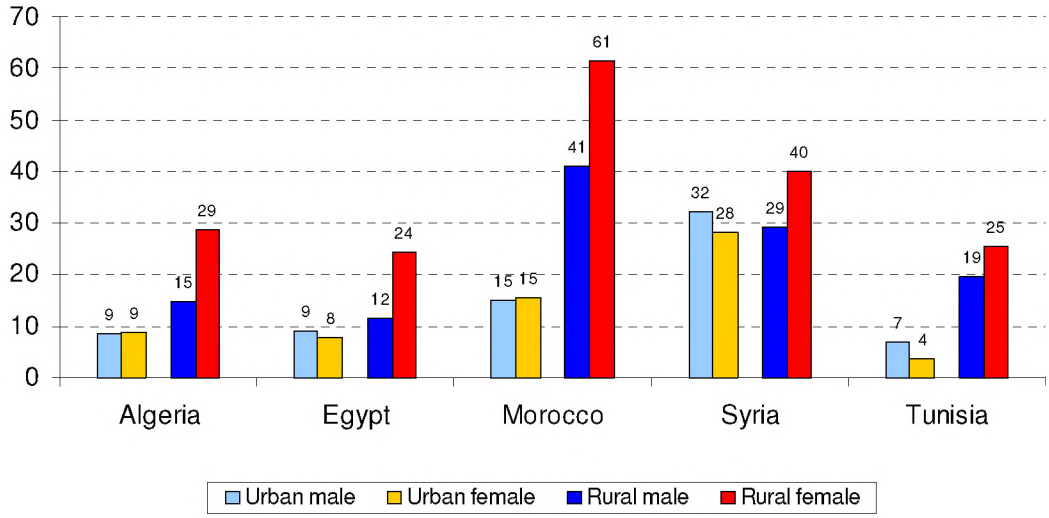

Figure 5. Percentage not in school of girls and boys aged 8-11 according to education of father and mother

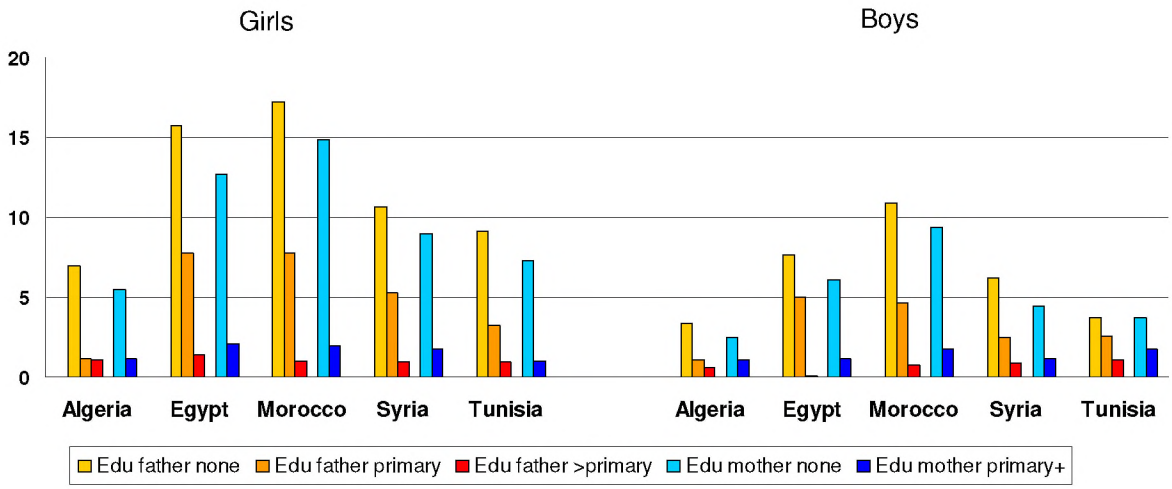

Figure 6. Percentage not in school of girls and boys aged 12-15 according to education of father and mother

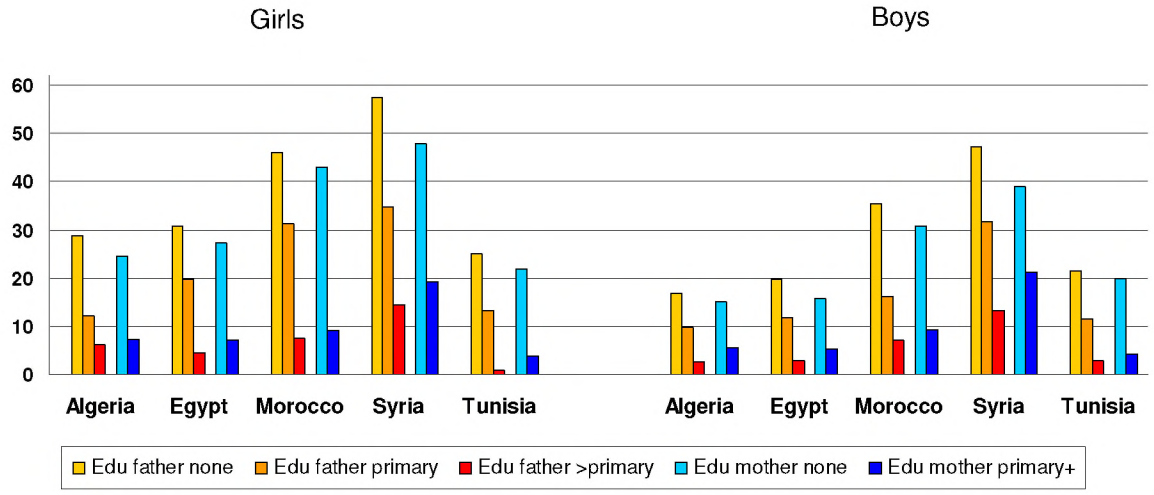

Table 1. Characteristics of the countries

	Algeria	Egypt	Morocco	Syria	Tunisia
General indicators					
Surface area 2002 (1000 square km)[1]	2,382	1,001	447	185	164
Population size 2002 (millions)[1]	31	66	30	17	10
Population density 2002[1]	13.0	65.9	67.1	91.9	61.0
GDP/c 2002 (PPP US$)[2]	5,760	3,810	3,810	3,620	6,760
Value added as percentage of GDP (2001)[3]					
- *Agriculture*	12	17	16	24	12
- *Industry*	76	34	32	30	29
- *Services*	12	49	53	46	59
Female share in labor force 2000[3]	29	22	24	30	26
Women in Parliament 2003/2004 (%)[4]	6.2	2.9	10.8	12	22.8
Human Development Index 2002[2]	0.70	0.65	0.62	0.71	0.75
Gender Development Index 2002[2]	0.69	0.63	0.60	0.69	0.73
Human Poverty Index 2002[2]	21.9	30.9	34.5	13.7	19.2
Fractionalization[5]					
- *Ethnic*	0.34	0.18	0.48	0.54	0.04
- *Linguistic*	.44	0.02	0.47	0.18	0.01
- *Religious*	0.01	0.20	0.00	0.43	0.01
Educational structure and system					
Adult literacy 1990[2]	2.9	47.1	38.7	64.8	59.1
Adult literacy 2002[2]	68.9	55.6	50.7	82.9	73.2
Female literacy rate 2002[2]	59.6	43.6	38.3	74.2	63.1
Female literacy rate as percentage of male rate[2]	76	65	61	82	76
Public spending on education					
- *% op GDP 1990*[2]	5.3	3.7	5.3	4.1	6
- *% op GDP 1999-2001*[6]		4.1	5.2	3.5	7.8
- *% op total government expenditure 1990*[2]	21.1		26.1	17.3	13.5
- *% op total government expenditure 1999-2001*[2]				11.1	17.4
Pupil-teacher ratio primary education 1999/2000[1]	28	22	28	24	23
Population under age 15 in 2002 (%)[2]	33.5	35.2	31.8	38.3	28.5
Age compulsory education[6]	6-15	6-14	6-15	6-15	6-16
Age primary education[6]	6-15	6-12	6-12	6-11	6-12
Age basic second stage education[6]	-	12-15	12-15	11-15	12-15

[1] World bank (2003), [2] UNDP (2004), [3] World Bank (2007), [4] IPU (2007), [5] Alesina et al. (2003), [6] IAU (2008)

Table 2. Coefficients of multilevel logistic regression models predicting the participation in education of boys and girls aged 8-15 in five MENA countries.

	Children aged 8-11		Children aged 12-15	
	Boys	**Girls**	**Boys**	**Girls**
Intercepts				
Country level	0.069	0.122**	0.450	0.301*
Regional/district level	0.182**	0.246*	0.084*	0.260**
Individual level	4.150**	4.420**	8.152**	6.676**
Socio-economic characteristics				
Education father				
None	Ref.	Ref.	Ref.	Ref.
At least some primary	0.317**	0.314**	0.435**	0.278**
At least some secondary	1.384**	1.076**	1.193**	0.946**
Education mother at least some primary	0.470**	0.735**	0.394**	0.537**
Occupation father				
Farm	Ref.	Ref.	Ref.	Ref.
Lower nonfarm	0.137	0.264	0.132	0.141
Upper nonfarm	0.774**	0.431	0.416**	0.355**
Mother employed	-0.091	-0.351*	0.042	0.005
Household wealth				
Lowest quintile	Ref.	Ref.	Ref.	Ref.
Middle quintiles	0.546**	1.203**	0.496**	0.605**
Upper quintile	0.869**	1.718**	0.755**	1.226**
Family structure				
Mother missing	-0.257	-0.963**	-0.091	-0.637**
Father missing	-0.205	-0.356**	-0.351**	-0.262**
Number of sisters				
None	Ref.	Ref.	Ref.	Ref.
One or two	0.055	-0.366**	-0.059	-0.069
Three or more	-0.056	-0.586**	-0.131**	-0.098
Number of brothers				
None	Ref.	Ref.	Ref.	Ref.
One or two	0.366	-0.273**	-0.084**	-0.170*
Three or more	0.094	-0.617*	-0.297**	-0.486**
Single parent family	-0.324	0.396**	0.043	0.337*
Extended family	0.015	0.267**	0.027	0.045
Mother got first child under age 18	-0.048	-0.245**	-0.235**	-0.130*
Individual characteristics				
Age child	-0.229**	-0.269**	-0.557**	-0.460**
Child is biological child	0.480*	0.524**	0.290*	0.142
Birth order child				
First born child	Ref.	Ref.	Ref.	Ref.
2th to 4th child	-0.060	-0.172	-0.077	-0.001
5th or later child	-0.203*	0.021	0.229**	0.333**
Living in a rural area	-0.331**	0.161	0.120	0.213
Regional/district level characteristics				
Regional degree of modernization	0.363**	0.151**	1.739**	-0.147
Proportion males in white collar jobs	-0.064*	-0.019	-0.626	0.280
Proportion females in white collar jobs		0.036		0.176

* P<0.05 ** P<0.01

Table 3. Interaction coefficients of multilevel logistic regression models predicting the participation in education of boys and girls aged 8-15 in five MENA countries.

	Children aged 8-11		Children aged 12-15	
	Boys	**Girls**	**Boys**	**Girls**
Interactions with rural				
Education father primary	0.556**			
Household wealth middle quintiles		-0.718**		
Household wealth upper quintile			-0.546**	
Mother got first child under age 18			0.318**	
Child is biological child				-0.759**
Interactions with modernization				
Occupation father lower nonfarm	-0.259**			
Occupation father upper nonfarm	-0.550**			
Mother missing				-0.199**
Living in rural area				0.491**
Age child			-0.119**	
Interactions with white collar jobs in region				
Education father primary				0.123**
Education father more than primary				0.413**
Occupation father lower nonfarm				-0.270*
Occupation father upper nonfarm				-0.449**
Mother employed			0.333**	
Household wealth middle quintiles			-0.201**	-0.219**
Father missing	0.475**			
Living in rural area	0.352**	0.550**	0.486**	
Age child			0.053*	
Child is 5th or later child		-0.282**		

* P<0.05 ** P<0.01

Appendix A. Percentage not in school of children aged 8-11 by characteristics of their family background and of the context in which they live

	Boys						Girls					
	Algeria	Egypt	Morocco	Syria	Tunisia	Total	Algeria	Egypt	Morocco	Syria	Tunisia	Total
Education father												
None	3.4	7.6	10.9	6.2	3.7	7.1	7.0	15.8	17.2	10.7	9.1	12.6
Some primary	1.1	5.0	4.7	2.5	2.5	2.9	1.2	7.8	7.8	5.3	3.2	5.0
More than primary	0.6	0.1	0.7	0.9	1.1	0.6	1.1	1.4	1.0	0.9	0.9	1.1
Education mother												
None	2.5	6.1	9.4	4.5	3.7	5.7	5.4	12.7	14.9	9.0	7.3	10.5
At least some primary	1.1	1.1	1.8	1.1	1.7	1.3	1.1	2.1	2.0	1.8	1.0	1.6
Occupation father												
Farm	4.5	6.0	16.2	4.7	2.4	8.0	14.8	15.6	24.7	9.4	5.6	15.4
Lower nonfarm	1.1	4.6	4.4	2.7	2.9	3.0	2.3	6.5	6.6	4.5	4.3	4.8
Upper nonfarm	0.2	0.3	1.2	1.2	1.2	0.8	0.4	1.2	4.2	2.3	1.3	1.7
Mother employed												
No	2.0	3.6	6.8	2.3	2.9	3.4	3.5	6.9	10.2	4.2	4.1	5.7
Yes	0.5	2.9	8.4	3.9	0.9	4.0	1.4	6.0	13.3	7.7	1.6	7.3
Household wealth												
Lowest quintile	4.5	9.0	15.4	3.5	5.6	7.9	10.3	17.6	32.6	9.1	13.0	16.9
Middle quintiles	1.2	2.2	5.7	2.9	1.8	2.9	1.6	4.3	6.8	4.7	1.1	4.0
Upper quintile	0.6	0.0	1.6	1.2	1.4	0.9	0.6	1.0	2.2	1.1	0.4	1.1
Number of sisters												
None	1.5	3.2	5.4	2.6	1.3	3.1	0.7	3.3	8.7	2.4	1.2	3.9
One or two	1.8	3.6	7.1	1.5	2.6	3.5	3.3	6.3	11.9	3.8	3.8	6.2
Three or more	2.1	3.5	10.3	4.4	3.9	4.6	5.0	13.0	14.6	6.8	6.7	8.6
Number of brothers												
None	2.9	3.5	4.6	4.1	1.9	3.6	0.9	1.6	7.7	5.0	1.7	4.1
One or two	1.2	2.6	6.6	1.7	2.2	3.0	3.0	5.2	10.4	4.4	3.5	5.6
Three or more	2.4	6.0	12.1	3.6	4.2	5.0	4.9	15.0	19.6	5.4	6.5	9.0
Birth order child												
First born child	1.4	2.9	4.9	1.9	2.2	2.9	1.7	0.5	9.6	3.7	2.1	3.9
2th to 4th child	1.7	3.0	7.3	1.9	2.2	3.4	3.6	8.2	12.0	4.2	4.2	6.9
5th or later child	2.2	6.2	11.0	4.2	4.1	4.9	4.1	12.6	14.7	6.5	5.0	7.7
Mother present?												
Yes	1.8	3.5	7.4	2.6	2.6	3.6	3.4	7.0	11.5	4.8	3.7	6.3
No	1.8	4.7	6.9	15.6	5.6	6.5	5.7	3.5	18.5	14.3	10.8	11.6
Father present												
Yes	1.8	3.4	7.5	2.7	2.3	3.5	3.5	7.0	11.9	4.9	3.8	6.3
No	2.1	5.1	7.0	3.5	5.9	5.1	3.0	6.2	11.4	5.5	5.2	7.5
Number of parents												
Two parents	1.8	3.3	7.6	2.6	2.3	3.6	3.5	7.1	12.5	4.8	3.9	6.6
Single parent	1.9	5.5	5.9	5.3	9.1	5.2	2.7	5.4	6.9	6.1	4.1	5.4
Kind of family												
Nuclear	1.5	2.6	7.0	1.9	2.5	3.0	3.3	6.3	11.0	4.4	3.2	5.7
Extended	2.2	4.7	7.8	4.5	2.8	4.6	3.6	7.8	12.7	6.1	4.8	7.4
Mother 1st child <18												
No	1.7	3.0	7.0	2.1	2.7	3.2	2.9	5.7	9.9	4.0	2.5	5.1
Yes	2.6	4.7	7.8	2.7	5.3	4.7	7.0	10.2	14.5	4.9	4.9	9.2
Urbanisation												
Urban	1.2	1.6	2.6	2.5	1.8	2.0	1.8	3.0	3.0	3.5	1.1	2.6
Rural	2.6	4.7	12.4	2.9	3.9	5.4	5.6	9.7	21.5	6.3	8.3	10.5

Appendix B. Percentage not in school of children aged 12-15 by characteristics of their family background and of the context in which they live

	Boys						Girls					
	Algeria	Egypt	Morocco	Syria	Tunisia	Total	Algeria	Egypt	Morocco	Syria	Tunisia	Total
Education father												
None	16.8	19.7	35.3	47.1	21.5	28.4	28.7	30.7	46.1	57.3	24.9	38.6
Some primary	9.7	11.7	16.1	31.8	11.6	18.7	12.2	19.8	31.2	34.7	13.2	23.8
More than primary	2.6	2.8	7.1	13.3	2.9	6.0	6.3	4.5	7.4	14.3	0.8	7.3
Education mother												
None	15.0	15.8	30.8	38.9	19.9	25.2	24.7	27.1	43.0	47.8	22.0	34.8
At least some primary	5.6	5.3	9.4	21.3	4.3	10.1	7.4	7.0	9.1	19.2	3.8	10.2
Occupation father												
Farm	23.5	17.9	44.8	34.8	19.5	30.5	43.9	32.1	62.4	48.3	25.4	45.6
Lower nonfarm	9.8	12.2	19.5	35.5	13.6	19.2	17.2	16.9	26.6	35.6	13.2	22.8
Upper nonfarm	3.2	3.0	8.4	19.2	4.2	9.3	5.6	7.4	10.5	21.5	4.6	11.6
Mother employed												
No	11.7	11.1	24.8	31.9	11.5	19.1	18.3	18.4	34.2	33.8	12.6	24.4
Yes	6.1	8.4	29.9	22.8	10.6	16.9	9.1	15.6	33.3	32.9	6.7	21.8
Household wealth												
Lowest quintile	22.5	18.2	50.4	37.4	25.5	31.3	40.4	38.6	70.4	49.6	34.3	48.3
Middle quintiles	9.3	10.3	23.4	31.8	9.8	18.2	13.6	14.2	31.3	35.1	8.2	22.2
Upper quintile	4.4	1.5	5.8	19.1	2.3	7.4	4.2	2.0	8.9	14.1	0.7	6.7
Number of sisters												
None	8.1	9.1	24.5	30.0	6.3	16.4	17.1	12.8	33.8	33.3	8.3	22.4
One or two	11.2	10.2	26.1	28.0	12.7	18.2	18.5	18.3	36.0	29.9	10.9	24.0
Three or more	12.9	13.5	29.8	33.9	13.1	22.7	17.8	23.3	38.3	39.2	17.0	29.0
Number of brothers												
None	8.9	7.7	20.1	27.2	7.8	14.5	10.4	10.9	24.7	34.0	4.7	18.7
One or two	9.9	10.3	24.3	26.4	11.0	17.0	13.8	14.0	34.6	28.4	9.5	21.2
Three or more	13.6	12.8	36.4	35.0	15.8	24.2	24.2	29.6	47.3	39.6	20.4	33.3
Birth order child												
First born child	9.2	7.2	24.5	26.8	7.2	16.2	13.6	12.6	36.0	32.5	6.9	22.7
2th to 4th child	12.6	11.8	27.5	32.5	13.0	20.4	19.5	19.0	35.9	35.5	12.5	25.9
5th or later child	11.1	11.3	27.2	29.4	14.0	19.3	18.6	24.3	37.6	33.6	16.3	26.2
Mother present?												
Yes	11.4	10.5	26.6	30.4	11.3	19.0	17.8	18.1	35.4	33.7	11.7	24.7
No	14.9	13.0	27.7	36.4	34.6	24.8	25.0	18.5	42.8	55.1	30.4	37.8
Father present												
Yes	11.2	10.6	26.2	30.1	11.4	18.8	18.1	17.9	36.1	34.1	12.2	24.9
No	13.9	10.5	28.1	35.9	13.9	22.0	17.9	19.5	35.9	37.7	10.0	27.9
Number of parents												
Two parents	11.3	10.7	26.9	30.1	11.1	19.0	18.2	17.9	37.4	34.7	11.9	25.5
Single parent	13.3	10.4	25.2	35.9	18.2	21.2	15.9	19.4	27.9	32.1	13.8	23.3
Kind of family												
Nuclear	10.1	9.0	24.2	28.6	9.6	17.7	16.6	13.1	34.0	31.2	9.2	22.5
Extended	12.4	12.1	28.3	32.8	13.6	20.5	19.0	22.3	37.6	37.8	14.7	27.5
Mother 1st child <18												
No	10.4	9.4	24.9	26.6	10.5	16.7	16.8	15.1	32.9	30.2	10.7	21.8
Yes	14.0	13.7	27.8	37.7	19.7	24.8	22.7	24.9	37.0	36.4	17.6	30.9
Urbanization												
Urban	8.6	9.3	14.9	32.1	7.0	15.2	8.9	7.7	15.4	28.2	3.8	13.8
Rural	14.6	11.5	41.0	29.3	19.5	23.3	28.7	24.4	61.4	39.9	25.4	36.9